

BYERS' NEW STORAGE PLAN

A Prominent Colorado Man Suggests
a Scheme for Saving Water
for Irrigation.

Ice Gorges to be Formed at the
Sources of Mountain Streams
During the Winter.

How They Can be Made and the Small Ex-
pense as Compared With
Reservoirs.

The problem of storing water as a reinforcement to the ordinary supply for purposes of irrigation is becoming a very important question, says Hon. Wm. N. Byers in the Colorado Farmer. Opinions as to how it can best be done are about as varied as are the opinions respecting irrigation itself. In many places there is not very much difference, and that is that storage reservoirs will cost a great deal of money. There is another fact that must be admitted, and it is that the storage of great quantities of water in artificially constructed reservoirs involves great risks—is extra hazardous.

Now, there is one plan of water storage which I think has never been discussed in print. I doubt if it has been thought of. It has the merit of being cheap and simple whenever the natural conditions will permit of its adoption. In many places it cannot be used at all. It could not be applied upon the waters of Cherry creek, Platte creek, Monument creek or many other streams that might be named. It is perfectly feasible upon the head waters of the Arkansas, the Platte, Clear creek, the Boulders, Cache-la-Poudre and all other streams that head high up upon the Snowy range. The plan is simply to convert the winter flow of water in such streams into ice. It can be made to pile itself up into great masses and extensive fields many feet in depth, sufficient to withstand the sunshine of the entire summer following. The plan is based upon intimate knowledge of high mountain streams and many years' observation of the effect of frost and snow upon them.

Most of the longer streams that flow out from the crest of the Snowy range rise at, or above, the upper line of timber growth. They descend by a steep grade through the upper belt of timber and a number of them converge toward a center of a basin which is the gathering point for a large stream. This basin is generally a swampy meadow, or a thicket of willows, filled with beaver dams. Sometimes it is partially covered with spruce trees. In any case it is wet and nearly, or quite level. The water flows through it very slowly and a relatively large quantity is always in store there. At the foot of the basin a sharper descent begins and a large, well defined stream is formed. It may, further on, pass through other basins, and lose itself in successive swamps or beaver ponds.

In ordinary seasons these high regions are only covered with snow. In many places it comes before the ground is frozen at all. It bridges over the channels of the small streams and each succeeding storm covers them deeper. Consequently they flow all winter under the snow. When the small streams have united and formed the large one, it is too wide for the falling snow to bridge over, but the frosty nights soon cover it with ice, leaving plenty of room beneath for the winter flow of water. Snow soon spreads a blanket over the ice and the stream is safely housed from its source at timber line all the way down the mountain slope to the point where changing temperature brings alternate freezing and thawing. Away up at the head, and for many miles down its course, there is no thawing for many months. Ice once formed remains ice until next summer.

Now, my plan is to obstruct these small streams at, or just above where they enter their first Alpine basin. It can be very easily done. When the snow has covered over the little rivulet and the weather has become freezing cold, break through the covering at a favorable point, pack the channel full of snow and compel the water to flow over your snow dam into the open air. The compact body of water that hitherto flowed in its confined and covered channel, now spreads out like a fan, in a thin sheet; it saturates the snow, the freezing air quickly changes it to ice, and in a little while a hillock is growing up like the dump at the tail of a ground sluice. And this hillock, or thousands of them, may be kept growing all winter. They will require some attention to prevent the water from burying a new channel under the snow, but this can hardly happen except during a very heavy storm.

To carry out this plan would require an able, trustworthy man for each given stream. It may be the basin, or a number of basins, at the head of a considerable stream. He must make his winter home there. Before winter sets in he will have surveyed the ground and marked out his route. It will be nearly on a level along the mountain side and will resemble a trapper's trail for setting a line of traps. He will mark it well by blazing trees or planting poles. At the crossing of each little stream he will determine the exact place to interrupt its flow and mark it by a high stake or pole. When the proper time comes he will proceed as above explained. During the winter he must keep watch of the work, and especially after each considerable fall of snow he should go over his entire circuit. A man should take care of fifteen or twenty miles, or from fifty to one hundred little streams. The tools required would be a shovel and, possibly, a wooden maul. As may be readily seen, this same process might be applied lower down the stream, where it is larger and instead of building a great number of little glaciers, construct a grand one. Success depends upon bringing the water out to the air; distributing it in a thin sheet over a comparatively large surface so it will freeze quickly, and keeping the flow all the time on the surface. To save it all, the process must be high enough on the mountains to have steady freezing weather. Taking the head waters of any one of our important irrigating streams, as the St. Vrain, the Boulders or Bear creek, and I believe a man at \$50 per month for six months in the year will store up more water against the next irrigating season than can be stored up in a \$50,000 reservoir. The plan is so simple and the expense would be so little that it is certainly worth an experimental trial at any rate.

OCTOBER CROP REPORT.

Department Comparisons With the Conditions a Month and a Year Ago.
WASHINGTON, Oct. 10.—The department of agriculture reports the general percentage of the condition of corn at 91.7, against 90.9 a month ago, and 92 for the crop of 1888 on the first of October, 1888. The condition of potatoes is 77.9, against 86.9 last October; of buckwheat 90, against 92.1 last year. A preliminary estimate of the yield per acre is 12.8 for wheat, 11.9 for rye and 22.2 for barley. The past month has been favorable for corn. A slight frost north of forty degrees injured late corn, but the percentage of damage is generally very small. The best development in maize was in the Missouri valley. Returns of the yield per acre of wheat are in thresh-

measurement. This report is not authority as the local estimates will be tested by the record books of the threshers now coming in. The present averages for the principal states are 13.8 bushels in New York and Pennsylvania, 12.4 in Ohio, 14.5 in Michigan, 14.7 in Indiana, 14.7 in Illinois, 16 in Wisconsin, 14.2 in Minnesota, 14.6 in Iowa, 13.1 in Missouri, 13 in Kansas, 18.4 in Nebraska, 12 in Dakota and 8.3 in California. Winter wheat was injured in many districts during the harvest by heavy rains, and is comparatively light, grading badly, thus reducing its weight and value.

The use of calomel for derangements of the liver has ruined many a fine constitution. Those who, for similar troubles, have tried Ayer's Pills testify to their efficiency in thoroughly remedying the malady, without injury to the system.

Impurities of the blood often cause great annoyance at this season. Hood's Sarsaparilla purifies the blood, and cures all such affections.

Reduced Rates.

The sixth annual meeting of the Montana W. C. T. U. will convene in Missoula Oct. 23 and 24, 1889. The Northern Pacific railroad, through General Agent Edger, kindly offers the usual reduction, a fare and a fifth. Delegates must secure receipts from local agents that they have paid full fare on going. This will entitle delegates to return certificates, which secures one-fifth rate returning.

Mrs. L. E. HOWEY, President.
Mrs. ALMA KIRKPATRICK, Secretary.

There was a terrible epidemic of dysentery and bloody flux in Pope county, Illinois, last summer. As many as five deaths occurred in one day. Messrs. Walter Brothers, of Waltersburg, sold over 200 bottles of Colic, Cholera and Diarrhoea Remedy during this epidemic, and say they never heard of its failing in any case when the directions were followed. It was the only medicine used that did cure the worst cases. Many persons were cured by it after the doctors had given them up. Twenty-five and 50-cent bottles for sale by H. M. Parthen & Co.

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Dr. Kirk's German Pile Ointment has cured Blind, Bleeding and Itching Piles when all other ointments have failed. It absorbs the tumors, allays the itching at once, acts as a potent, gives instant relief. Dr. Kirk's German Pile Ointment is prepared only for piles and itching of the private parts, and nothing else. Every box is warranted. Sold by druggists or sent by mail on receipt of price, 50 cents and \$1 per box. Sold by S. H. Hale & Co., Helena.

A Woman's Discovery.

"Another wonderful discovery has been made, and that, too, by a lady in this county. Disease fastened its clutches upon her and for seven years she withstood its severest tests, but her vital organs were undermined and death seemed imminent. For three months she coughed incessantly and could not sleep. She bought of us a bottle of Dr. King's New Discovery for Consumption and was so much relieved on taking the first dose that she slept all night and with one bottle has been miraculously cured. Her name is Mrs. Luther Lutz. Thus writes W. C. Hamrick & Co. of Shelby, N. C. Get a free trial bottle at S. H. Hale & Co.'s drug store.

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"Used Up," "No Energy," and similar expressions, whenever used, indicate a lack of vital force, which, if not remedied in time, may lead to complete physical and nervous prostration. Ayer's Sarsaparilla is the best medicine to vitalize the blood, build up the tissues, and make the weak strong.

"For nearly three months I was confined to the house. One of the most celebrated physicians of Philadelphia failed to discover the cause of my trouble or afford relief. I continued in a bad way until about a month ago when I began to take Ayer's Sarsaparilla. It acted like a charm. I have gained flesh and strength and feel ever so much better. Shall continue using the Sarsaparilla until completely cured."

—John V. Craven, Salem, N. J.
"I find Ayer's Sarsaparilla to be an admirable remedy for the cure of blood diseases. I prescribe it, and it does the work every time." — E. L. Pater, M. D., Manhattan, Kansas.

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